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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,687	05/26/2006	Sebastian Budz	32860-001044/US	4363

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EXAMINER
BITAR, NANCY

ART UNIT	PAPER NUMBER
2624	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<table>
<tr><td rowspan="2">Office Action Summary</td><td>Application No.
10/580,687</td><td>Applicant(s)
BUDZ ET AL.</td><td></td></tr>
<tr><td>Examiner
NANCY BITAR</td><td>Art Unit
2624</td><td></td></tr>
</table>

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *3/18/2009*.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-19* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on <u>26 May 2006</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☒ All   b)☐ Some * c)☐ None of:
      1.☒ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

1.   Applicant's response to the last Office Action, filed 12/24/008, has been entered and

made of record.

2.   Applicant has amended claims 5-10. Claims 1-19 are currently pending.

3.   Applicant amendment to claims 7- 10 did not overcome the 101 rejection since the

computer readable medium must **store** computer instruction or the like in order to make the

claim statutory. Examiner suggest applicant to amend the claim to a computer readable medium

storing computer executable instruction that facilates at least one of executing and installing the

method of claim 1.

Applicants arguments filed 3/18/2009 with respect to the 102 rejection have been fully

considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon

further consideration, a new ground(s) of rejection is made in view of Golland et al (Anatomy

Browser: A novel approach to visualization and integration of medical information)

Claim Rejections - 35 USC § 101

> 35 U.S.C. 101 reads as follows:
>
> Whoever invents or discovers any new and useful process, machine, manufacture, or
> composition of matter, or any new and useful improvement thereof, may obtain a patent
> therefor, subject to the conditions and requirements of this title.
>
> The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject
> Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as
> follows:
>
> Descriptive material can be characterized as either "functional descriptive material" or
> "nonfunctional descriptive material." In this context, "functional descriptive material"

consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.

When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare In re Lowry, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and Warmerdam, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).

In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

4.   Claim(s) **7-10** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim **7-10** defines a "**computer readable medium**" embodying functional descriptive material. However, the claim does not define a computer-readable medium storing computer instruction nor storing a computer program is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" – Guidelines Annex IV). That is, the scope of the presently claimed "**a computer program product**" can range from paper on which the program is written, to a

program simply contemplated and memorized by a person. The examiner suggests amending the

claim to embody the program on "computer-readable medium storing a computer program" or

equivalent in order to make the claim statutory. Any amendment to the claim should be

commensurate with its corresponding disclosure.

Claim Rejections - 35 USC § 112

5.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and
> distinctly claiming the subject matter which the applicant regards as his invention.

6.   Claim 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention. Regarding claim 1 and 16, the phrase "in such a way" in line 12 and line 14

renders the claim indefinite because it is unclear whether the limitations following the phrase are

part of the claimed invention. See MPEP § 2173.05(d). Moreover, claim 1 and 16 teaches

"receiving a user input directed toward the selection of *at least one partial projection*

functionalized " There is already an antecedent bases for the partial projection and therefore the

claim language should read as following " receiving a user input directed toward the selection of

the at least one partial functionalized. Moreover, " functionalizing the at least one optically

emphasized partial projection" is unclear and confusing" it is unclear what applicant means by

functionalizing whether it is the volume data having functional information or the visualization

of the hot spots are being analyzed. Claim 1 and 16 is also rejected under 35 U.S.C. 112, second

paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap

between the steps. See MPEP § 2172.01. The omitted steps are: "displacement of the user input

or the like ". The claim suggest that there is a displacement but no teaches of the displacement

was claimed. Appropriate correction is required.

Examiner Notes

7.   Examiner cites particular columns and line numbers in the references as applied to the

claims below for the convenience of the applicant. Although the specified citations are

representative of the teachings in the art and are applied to the specific limitations within the

individual claim, other passages and figures may apply as well. It is respectfully requested that,

in preparing responses, the applicant fully consider the references in entirety as potentially

teaching all or part of the claimed invention, as well as the context of the passage as taught by

the prior art or disclosed by the examiner

Claim Rejections - 35 USC § 103

8.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or
> described as set forth in section 102 of this title, if the differences between the subject
> matter sought to be patented and the prior art are such that the subject matter as a whole
> would have been obvious at the time the invention was made to a person having ordinary
> skill in the art to which said subject matter pertains. Patentability shall not be negatived
> by the manner in which the invention was made.

9.   Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gering ET

al (A system for surgical planning and guidance using image fusion and interventional MR) in

view of Golland et al (Anatomy Browser: A novel approach to visualization and integration of

medical information)

As to claim 1, Gering et al teaches the method for navigating in three-dimensional

electronic image data records, the image data records including three-dimensional partial image

data records, the method comprising: optically displaying at least two mutually perpendicular

two-dimensional projections of an image data record, at least one of the two projections

including at least one two-dimensional partial projection of at least one partial image data record

(figure 2-5; the outline of the tumor segmentation is drawn in green on an anatomical image on

the left, and on vascular image on the right. ; the vascular image is fused with the anatomical

image using uniform blending on the left but selective overlay on the right; page 36)

Optically emphasizing the at least one two-dimensional partial projection; functionalizing

the at least one optically emphasized partial projection such that the at least one optically

emphasized partial projection is selectable by a user input (each reformatted slice may be

generated from any of the available data sets; figure 3-1; Page 35, Multiple Volumes, section

2.3.2);

receiving a user input directed toward the selection of at least one partial projection

functionalized in such a way; and automatically displacing, as a function of the user input, the at

least one projection not including the at least one partial projection in such a way that it includes

the partial projection after displacement (besides using the sliders on the GUI to position

reformatted slices users may simply click on a location to change the center of all slices to that

point in 3D space, section 2.3.5; figures 2-7; reformatted slice location).

While Gering meets a number of the limitations of the claimed invention, as pointed out more fully above, Gering clearly teaches that the planes can be displaced through the image volumes by means of control means (page 33, lines 3-4) or by means of a mouse click on an interesting region of the image in one of the slice planes, the midpoint of all the slice can be overlaid on this 3D point (page 37, lines 15017) Gering fails to specifically teach automatically displacing as a function of the user input the at least one projection not including the at least one partial projection in such a way that it includes the partial projection after displacement.

Specifically, Golland et al. teaches a novel framework for visualization of 3D models of anatomical structures. In this framework, the visualization process is divided between the back-end system that renders the images and saves them in a special format, and the user-end interface that reads pre-rendered images and displays 3D models, while providing a set of 3D scene manipulation capabilities similar to visualization packages based on true dynamic rendering (see abstract) .Moreover, Golland teaches the use of AnatomyBrowser integrates three main types of information: 3D surface models, slice data sets and text. Accordingly, the user-end interface consists of three main components: a 3D display, three slice displays and a hierarchy panel (Fig.4a). In addition to visualization capabilities, Anatomy-Browser provides cross-referencing among all types of displayed information. The user-end interface is implemented as a Java applet, and is therefore platform independent. it would have been obvious to one of ordinary skill in the art to use the AnatomyBrowser in Gering in order reduce the amount of information transmitted over the network and thus make remote use of the system feasible. Therefore, the claimed invention would have been obvious to one of ordinary skill in the art at the time of the invention by applicant.

As to claims 2 -4, Gering et al teaches the method as claimed in claim 1, wherein the image data record is formed by fusing at least two source image data records and the partial image data records are formed from the same source image data record (blending images with respective opacity values; multiple volumes on the same slice; section 2.3.3, page 34).

Claim 5-15 differ from claims above only in that claim 1-4 are method claims whereas, claims 5-15 are computer claim. Thus, claims 5-15 are analyzed as previously discussed with respect to claims above.

The limitation of claim 16-19 has been addressed above. Gering et al teaches the display of medical image data subsets and for navigation therein, for diagnostic purposes, provision being expressly made for the simultaneous display of projections and slice planes from different image data subsets (page 34; Multiple Volumes). The planes can be displayed through the image volumes by means of control elements (page 33, lines 3-5) or by means of a mouse click on an interesting region of the image in one of the slice planes the midpoint of all the slice planes can be overlaid on this 3D point in order to contain the region of the image (page 37, line 15-17). In order to be able to view an interesting image detail in all projection, it would be obvious for the user of the device to first select and display the different image data sets of interest.

Conclusion

10.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to NANCY BITAR whose telephone number is (571)270-1041. The examiner can normally be reached on Mon-Fri (7:30a.m. to 5:00pm). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached

on 571-272-7415. The fax phone number for the organization where this application or

proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nancy Bitar/
Examiner, Art Unit 2624

/Vikkram Bali/
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